

Remarks/Arguments

35 U.S.C. §102

Claim 8 stands rejected under 35 U.S.C. §102(e) as being anticipated by Ammar et al. (U.S. Publication No. 2005/0123307), hereinafter referred to as “Ammar”.

It is respectfully asserted that Ammar fails to disclose an RF unit:

“wherein the tuner or the tuner and the mixer are arranged on a first substrate and the mixer and the demodulator or the demodulator are arranged on a second substrate, ... wherein the first and second substrates are arranged in parallel on respective different levels,”

as described in currently amended claim 8.

Among the problems addressed by the present invention is the need for an RF unit with reduced size without the need to change existing manufacturing equipment. If components are placed on both sides of a carrier substrate, a double re-flow soldering process has to be used, which incurs further processing steps. This approach has limitations with regard to design and manufacturing cost because small components normally are more expensive and existing manufacturing equipment may become obsolete and has to be replaced. (Specification, page 1)

To address this problem, the present application discloses an RF unit having a tuner, a demodulator and a mixer. The tuner or the tuner and the mixer are arranged on a first substrate, and the mixer and the demodulator or the demodulator are arranged on a second substrate, respectively. Further, a housing is provided that at least partly accommodates the first and the second substrate. The substrates are arranged in parallel on different levels. Means are provided for maintaining a predetermined distance between the first and the second substrate, and connectors are provided for electrically connecting the first and the second substrate. At least one of the connectors has one or more contacts extending through the first and the second substrate, the contacts extending through the first and the second substrate being adapted for mounting on connecting the RF unit to a circuit board to

which the RF unit is mounted. The contacts extending through the first and the second substrate may further be adapted for electrically interconnecting the substrates.

In contrast, Ammar teaches “an indoor unit (IDU) and compact outdoor unit (ODU) having an intermediate frequency/modem circuit, millimeter wave transceiver circuit, and digital interface between the IDU and the ODU capable of up to about 100 MBps data rate over at least about a 300 meter cable. The system uses a conversion to the polar coordinate system completes calculations in the polar coordinate system, reducing the computational requirements, and therefore, the size and cost of the system.” (Ammar Abstract)

Ammar does disclose a block diagram showing an RF BOARD, a FREQ. BOARD and an IF/MODEM BOARD and their interconnection. (Ammar, Figure 3) Ammar does not, however, disclose arrangement of these functions on first and second substrates on parallel levels. Thus, Ammar fails to disclose an RF unit: “wherein the tuner or the tuner and the mixer are arranged on a first substrate and the mixer and the demodulator or the demodulator are arranged on a second substrate, ... wherein the first and second substrates are arranged in parallel on respective different levels,” as described in currently amended claim 8.

In view of the above remarks and amendments to the claims, it is respectfully submitted that there is no 35 USC 112 enabling disclosure provided by Ammar that makes the present invention as claimed in currently amended claim 8 unpatentable. Since dependent claims 10-13 are dependent from allowable independent claim 8, it is respectfully submitted that they too are allowable for at least the same reasons that claim 8 is allowable. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

35 U.S.C. §103

Claims 9-13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ammar et al. (U.S. Publication No. 2005/0123307), hereinafter referred to as “Ammar”, and in view of Hayles (WO 92/03031 A1).

It is respectfully asserted that neither Ammar nor Hayles, alone or in combination, discloses an RF unit:

“wherein the tuner or the tuner and the mixer are arranged on a first substrate and the mixer and the demodulator or the demodulator are arranged on a second substrate, ... wherein the first and second substrates are arranged in parallel on respective different levels, wherein means are provided to maintain a predetermined distance between the first and the second substrate, wherein connectors are provided for electrically connecting the first and the second substrates”

as described in currently amended claim 8.

As described above, Ammar fails to disclose the separation of the functions onto parallel substrates. Thus, Ammar also fails to disclose an RF unit: “wherein the tuner or the tuner and the mixer are arranged on a first substrate and the mixer and the demodulator or the demodulator are arranged on a second substrate, ... wherein the first and second substrates are arranged in parallel on respective different levels, wherein means are provided to maintain a predetermined distance between the first and the second substrate, wherein connectors are provided for electrically connecting the first and the second substrates” as described in currently amended claim 8.

Hayles teaches a “frame for hybrid circuit comprises a floor surrounded on each face by a respective upstanding rim and in which the floor provides a ground plane for circuits mountable upon each face of the floor. The rims include sockets to receive R.F. connectors for supplying R.F. signals into and out of the circuits, the rims further including connection means by which digital and/or D.C. signals can be interconnected with the circuits.”
(Hayles Abstract)

Hayles fails to disclose the substrate being provided with means for maintaining a predetermined distance between the first and the second substrate, the means electrically connecting the substrates, and fails to suggest electrical contacts extending through the first and second substrates. Rather, the frame of Hayles is equipped with means for supporting

a substrate in a predefined position. Providing the substrates with the means for maintaining a predetermined distance with electrical contacts between the substrates, as suggested in the present invention, advantageously allows for assembling the first and the second substrate without using a housing in order to be able to access parts, for example for measurement purposes.

Thus, Hayles, like Ammar, fails to disclose an RF unit: “wherein the tuner or the tuner and the mixer are arranged on a first substrate and the mixer and the demodulator or the demodulator are arranged on a second substrate, ... wherein the first and second substrates are arranged in parallel on respective different levels, wherein means are provided to maintain a predetermined distance between the first and the second substrate, wherein connectors are provided for electrically connecting the first and the second substrates” as described in currently amended claim 8.

In view of the above remarks and amendments to the claims, it is respectfully submitted that there is no 35 USC 112 enabling disclosure provided by Ammar that makes the present invention as claimed in current claims 10-13 unpatentable. Furthermore, since dependent claims 10-13 are dependent from independent claim 8, which is allowable for the reasons described above, it is respectfully submitted that they too are allowable for at least the same reasons that claim 8 is allowable. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

Having fully addressed the Examiner’s rejections it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant’s representative at (609) 734-6804, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believed due. However, if a fee is due, please charge the additional fee to
Deposit Account 07-0832.

Respectfully submitted,

/brian j cromarty/

By: Brian J. Cromarty
Reg. No. L0027
Phone (609) 734-6804

Patent Operations
Thomson Licensing Inc.
P.O. Box 5312
Princeton, New Jersey 08543-5312
February 11, 2009